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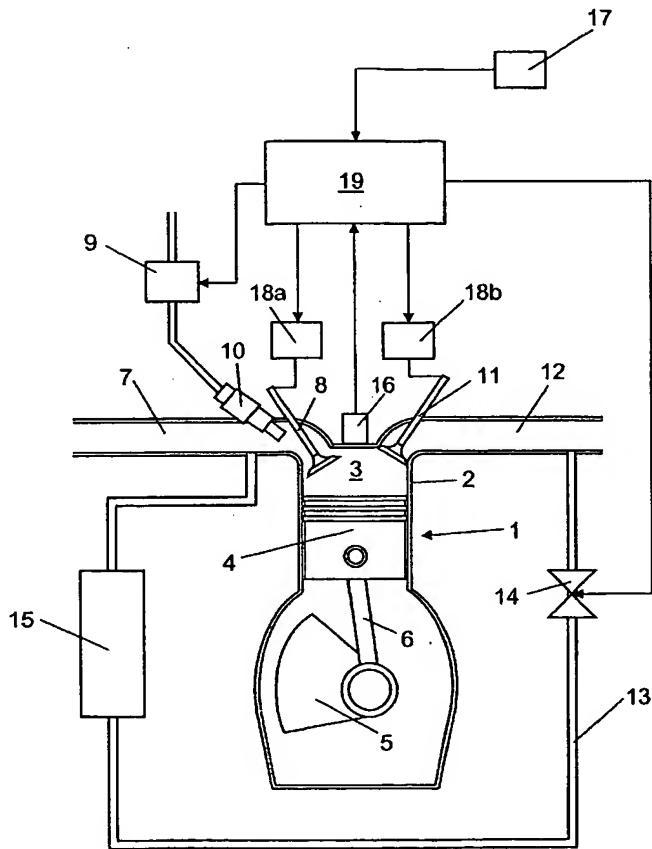
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(54) Title: ARRANGEMENT AND METHOD FOR CONTROLLING A COMBUSTION ENGINE



(57) **Abstract:** The present invention relates to an arrangement and a method for controlling a combustion engine (1), e.g. of the type called HCCI engine. The arrangement comprises a control unit (19) adapted to controlling the self-ignition of the fuel mixture towards an optimum crankshaft angle (cad_{opt}) within a load range (L_{tot}). Said load range (L_{tot}) can be divided into at least two subranges ($L_{\text{II}}, L_{\text{III}}$) and the control unit (19) is adapted to controlling the self-ignition of the fuel mixture towards an optimum crankshaft angle (cad_{opt}) within one of said subranges (L_{II}) by means of a strategy (II) which entails the effective compression ratio (c) in the cylinder (2) being varied, and within the second subrange (L_{III}) by means of another strategy (III) which entails a variable amount of cooled exhaust gases (ceg) being led to the combustion chamber (3) so that it becomes possible also in the second subrange (L_{III}) to control the self-ignition of the fuel mixture towards an optimum crankshaft angle (cad_{opt}) by variation of the effective compression ratio (c) in the cylinder (2) without it falling below a lowest acceptable value (c_{min}).



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